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Sponsored by:
Erie County Environmental
Management Council
c/o Erie County Department
of Environment and Planning
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Working With Nature To Create Healthy Lawns

A guide to reducing pesticide use on our lawns... why and how.

Q: What is a pesticide?

A: Herbicides, insecticides and fungicides ARE ALL pesticides designed to kill or repel a variety of plants and animals.

Q: Pesticides are registered with the EPA. Doesn't this mean they are safe?

A: No! EPA registration is NOT a guarantee of safety - all pesticides carry some risk to human health and the environment. It is illegal to state that a pesticide is safe even if used as directed on the label.[1]

Consider:

- Many products were registered years ago under less rigorous testing[2], and it can take years to remove a product from the market.[3]
- The EPA has just begun studying the cumulative effects of pesticide exposure from lawns, food, and water. Definitive findings are still years away.
- Many lawn pesticides remain toxic long after the re-entry recommendations. Breakdown products produced as pesticides decompose can be even more toxic than the original active ingredient.[4]

NONE OF US CAN KNOW WHAT WE ARE BUYING! Consumers are kept in the dark about the bulk of the ingredients in pesticide products. Pesticide labels don't give the identity of "inerts" which may comprise up to 99% of the product.

AND DON'T BE FOOLED BY THE NAME "Inerts" are any ingredients not used to control the target pest, and include chemicals which can have significant health risks. "Inerts" include chemicals like chloroethane, toluene and naphthalene which are listed as "Hazardous Waste" under superfund regulations and are subject to special disposal restrictions if found in other products.[5]

Q: Does scientific data indicate harmful effects of pesticides on humans and the environment?

A: Yes!

- Pesticide use is repeatedly linked to Parkinson's disease and other degenerative neurological illnesses.[6]
- A growing body of evidence links exposure to common lawn pesticides with non-Hodgkins lymphoma,[7] childhood cancers,[8] multiple myeloma,[9] leukemias,[10] breast,[11] prostate,[12] ovarian,[13] pancreatic cancers,[14] and birth defects.[15] Studies also show that commonly used pesticides are asthma triggers.[16]
- Many lawn pesticides are classified as endocrine disruptors which can cause irreversible damage to endocrine and reproductive systems in both males and females.[17]

- Pesticides are in all of us. New data from the Centers for Disease control show that 86% of the blood and urine samples they studied contained a metabolite of carbaryl (Sevin) and naphthalene.[18]

In 2001, the Lymphoma Foundation of America found that 75% of 99 studies link lymphomas to pesticides.[19]

Q: Am I exposed if my neighbor is using pesticides?

A: Yes! You are exposed both through drift and evaporation into the air. Pesticide runoff pollutes ground and surface water, which threatens the safety of our drinking water supply.[20]

The EPA states that some degree of drift of spray particles occurs from nearly all applications.[21] Evaporation occurs with liquid, powder, and granular pesticides.[22] Once pesticides evaporate, they become part of the atmospheric water cycle. The USGS states that nearly every pesticide investigated has been detected in air, rain, snow, or fog throughout the country.[23] Pesticide detection in the air reflects pesticide use in the area.[24]

Common Misconceptions Regarding Pesticide Products:

"It's on the market, therefore it has been tested and shown to be safe."

"The ingredients are all listed on the pesticide product label"

Q: Who is most at risk?

A: Children Lawn pesticides present special risks for children.[25]

Children, because of their immature nervous and immune systems, smaller body size, and higher metabolic rates, are more susceptible to the toxic effects of pesticides than are adults. Children may spend more time playing outdoors where they can come in direct contact with pesticides. In December of 1998, the EPA stated that pesticides now licensed for use have NOT been studied to determine their potential for toxic effects on children.

Applicators Reports indicate that workers with heavy pesticide exposure have higher rates of cancer.[26]

Pets A case-control study of canine malignant lymphoma reports a positive association with an owner's use of the popular crabgrass killer 2,4-D and their pet dog's chances of getting cancer.[27]

An EPA study found that residue tracked in by pets and on people's shoes increased the pesticide loads in carpet dust as much as 400-fold. Pesticides intended for outdoor use persist for years indoors because they are sheltered from sun, rain and other forces that degrade them outdoors.[28]

Wildlife 67 million birds die each year from exposure to pesticides, according to Cornell research.[29]

Songbirds are especially at risk because they eat pesticide granules and treated insects.[30] Raptors such as red-tailed hawks and great horned owls often feed on pesticide-poisoned prey. Pesticides kill earthworms and other beneficial organisms, disrupting the ecological balance of your lawn. Many lawn pesticides are toxic to aquatic life.

Tips for a Pesticide-free Lawn.

1. Grass Seed:

- Select the proper grass for your site based on intended use, and amount of sunlight. For example, use cool-season grasses, such as Kentucky bluegrass, fine fescues, and perennial ryegrass for Western New York. Choose a good quality seed mixture (look for the lowest percentage of “other ingredients” in the mix). The best time to seed new lawns is: August 15 - September 15.
- Overseed (plant new seed on an existing lawn) in areas where the turf is thin to help grass outcompete weeds. To overseed: mow close, rake to loosen soil and ensure that seeds and soil make contact. Water to get grass started.

2. Mowing:

Believe it or not, bad mowing is a common cause of insect and weed problems.

- Mow High - no shorter than 3 inches to prevent weeds from getting sun and water, essentially choking them out of your lawn. Don’t cut off more than a third of the blade of grass at each mowing because it stresses the plant; that means mow when grass reaches 4 ½ inches.
- Leave clippings on the lawn. It adds essential nutrients to the soil and saves you money on fertilizers!
- Sharpen mower blades - at least once a year.

3. Develop Healthy Soil:

Good soil is the foundation of a healthy lawn.

Fertilizer and PH:

- Save $. Test soil before you buy fertilizer or lime. Call Master Gardener Hotline, 652-5400, ext. 137, or choose a quality lawn care service that will provide a soil test to determine your needs.
- Many products are combinations of fertilizers and pesticides. Read labels carefully to avoid paying for product you don’t want.

- Feed the roots in the fall and you’ll have good grass in the Spring. If you need to fertilize, use a slow release product and Fertilize Labor Day - it’s the most important time.
- Soil pH should be between 5.5-7.0. Plant nutrients are more available and beneficial microorganisms are more active within this range.
- Lime and sulfur are rarely necessary. Apply lime to raise pH or sulfur to lower pH only if indicated by soil tests.

Aerate: Aerating lawns helps water and nutrients reach the roots. Rent a machine or hire a lawn professional.

Top Dress: Organic matter is critical to soil health - it holds water and nutrients and prevents compaction. If your soil test shows less than 5% organic matter, apply a ¼” layer of finished compost in the fall (just before the leaves drop). Small lawn - fling with shovel and spread with rake; large lawn - use a manure spreader to apply a thin layer. Compost will not be visible in a few days.

4. Water properly:

Many people overwater. If you choose to water your lawn, know that average soil needs about one inch of water a week. Water your lawn only if it’s not raining enough. When you do water, place a tuna can under the sprinkler so you can measure the water you’re adding. Keep in mind, lawns may turn straw colored and go dormant during a dry spell, but will revive when it rains. To protect the dormant turf do not allow significant foot traffic.

> “What is a weed?
> A plant whose virtues have not yet been discovered”
> - Ralph Waldo Emerson

Problem-Solving:

1. Manage weeds:

- Your best strategy to prevent weed invasions is to maintain a healthy lawn. Follow the tips above and you should not have a lot of weeds. Realize that a lawn with 15% weeds looks weed-free to the average observer. Putting-green perfection is not necessary.

- Identify which weed species are present before choosing a management strategy.[31] Most weeds are not problematic, while others can be invasive. Knowing which weeds you have also provides information about your soil. For example, Broadleaf plantain thrives in heavy, compacted soil, so aerate and topdress with organic matter to discourage plantain from returning.
- Some weeds can be effectively pulled by hand. Look for hand tools for removing specific weeds and reseed bare spots.
- Be patient, it takes several seasons for a lawn to change from chemical dependency to an ecosystem in balance. In a season or two you'll fight fewer pests and spend less money.
- Be tolerant. A natural yard is not a monoculture but an abundance of pests, predators, weeds, and our favorite plant species. Some weeds are even beneficial. White clover fixes nitrogen, which benefits grass, and the much-maligned dandelion provides food for tiny parasitic wasps that attack garden pests. Many of the bugs we think of as pests are dinner for birds. Put out a bird feeder and a birdbath. Chickadees spend winter eating aphid eggs; Baltimore Orioles can eat 17 tent caterpillars a minute.[32]

2. Insect Problems:

Know your enemies: Every insect has a population level below which spraying does more harm than good. Some species of white grubs, for example, hatch just once every seven years, so if you're treating your lawn every spring, you're not only wasting money, you're also killing beneficial insects. Test your lawn: In late August cut back three sides of a square foot of sod an inch deep. Peel back the square. If you find fewer than 6 to 10 grubs, replace the sod, water it thoroughly, and relax. Your lawn will be fine.[33]

3. Shade:

- Realize that grass just can’t grow well in certain spots. At the base of a tree, for example, consider wood chips or shade-loving ornamentals like periwinkle or pachysandra
- You can achieve a healthy lawn without pesticides. Follow these recommendations to make an investment in the health of your family, your pets and your neighbors, and in our water, our world and our future.

Complete references available at:
http://www.erie.gov/environment/compliance/manage.phtml

Resources:

- Safe & Easy Lawn Care: the Complete Guide to Organic, Low-Maintenance Lawns, 1997
- Turfgrass Problems – Picture Clues and Management Options, Gussack and Rossi, 2001, Cooperative Extension
- Common Sense Pest Control, Olkowski, Daar, and Olkowski, 1996
- Living Downstream, Steingraber, 1997
- Chemical- Free Lawn, Schultz, 1989
- The EXtension TOXicology NETwork: **http://ace.orst.edu/info/extoxnet/**
- New York Coalition for Alternatives to Pesticides: **http://www.crisny.org/not-for-profit/nycap/**
- Buffalo Pest Management Board: **http://www.environment-buffalo.org/** under pesticides
- Western New York Society for Organic Horticulture: **http://www.organicgardensupplyco.com/wnysfoh.htm**
- Cornell Cooperative Extension, ask for organic lawn care info, 652-5400 ext. 137.
- Garden’s Alive Catalogue, 812-537-8650

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